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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,026	06/25/2001	Gershon Elber	01/21687	7435
7590 Martin D. Moynihan PRTSI, Inc. P. O. Box 16446 Arlington, VA 22215			EXAMINER PESIN, BORIS M	
			ART UNIT 2174	PAPER NUMBER
			MAIL DATE 12/07/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/887,026

Applicant(s)

ELBER ET AL.

Examiner

Boris Pesin

Art Unit

2174

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-35 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 15-33, 35 and 44-46 is/are allowed.
- 6) ☒ Claim(s) 8-14 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Response to Amendment

This communication is responsive to the amendment filed 09/18/2007.

Claims 1-5, 7-35 and 44-46 are pending in this application. Claims 1, 8, 15, 34, 35, 44, and 45 are independent claims. In the amendment filed 9/18/2007, Claims 8-10 and 34 were amended. This action is made Final.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-14, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US 6388667) in view of Matsuda (US 6734885).

In regards to claim 8, Sato teaches a server adapted to communicate with a remote client, said server implementing a virtual computing environment, said virtual computing environment comprising: a plurality of virtual objects (i.e. "Actors also include sound control actors, storage region management actors, and actor-to-actor communications actors." Abstract). Sato does not teach functionality for avoiding undesirable loops by preventing a consequential interaction between a first one of said virtual objects with a second one of said virtual objects when a number of interacting objects involved in said consequential interaction reaches a predefined maximum,

wherein said interacting objects include said second virtual object, and any virtual object intermediating between said first virtual object and second virtual object.

Matsuda teaches functionality for avoiding undesirable loops by preventing a consequential interaction between a first one of said virtual objects with a second one of said virtual objects when a number of interacting objects involved in said consequential interaction reaches a predefined maximum, wherein said interacting objects include said second virtual object, and any virtual object intermediating between said first virtual object and second virtual object ("In an observation study, for example, a number of clients each want to see and walk about the 3-dimensional virtual space by operating its avatar. For each operation, the amount of system processing increases, causing the amount of communication on a transmission line to rise as well since every avatar shares information with other avatars. For this reason, it is necessary to impose an upper limit on the number of clients allowed to participate in the 3-dimensional virtual space each as a guest who wants to have experience of the 3-dimensional virtual space before becoming a regular client." Column 2, Line 31)). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sato with the teachings of Matsuda and put a limit on the number of interactions between objects with the motivation to maintain the speed and usability of the virtual world.

In regards to claim 9, Sato and Matsuda teach all the limitations of claim 8. Sato further teaches a server as claimed in claim 8 wherein said consequential interaction is direct (Figure 2, Elements 38 and 40, "Actor-to-actor communications").

In regards to claim 10, Sato and Matsuda teach all the limitations of claim 8. Sato further teaches a server as claimed in claim 8, wherein said consequential interaction is an indirect interaction, being an interaction involving at least one mediating interaction with at least one intermediate object (i.e. "The role of the environment actor 32 is to control details such as the color of the background, other than a stage 44, and the brightness of light sources." Column 9, Line 54).

In regards to claim 11, Sato and Matsuda teach all the limitations of claim 10. Sato further teaches a relationship with at least said second virtual object being defined by an order number, said order number being equal to the number of consequentially interacting objects (i.e. Figure 9A).

In regards to claim 12, Sato teaches all the limitations of claim 11. Sato does not teach a server having a predetermined interaction limit, and an interaction stopper operable to prevent further consequential interactions occurring once a number of interactions corresponding to said interaction limit has been reached. Matsuda teaches "In an observation study, for example, a number of clients each want to see and walk about the 3-dimensional virtual space by operating its avatar. For each operation, the amount of system processing increases, causing the amount of communication on a transmission line to rise as well since every avatar shares information with other avatars. For this reason, it is necessary to impose an upper limit on the number of clients allowed to participate in the 3-dimensional virtual space each as a guest who wants to have experience of the 3-dimensional virtual space before becoming a regular client." Column 2, Line 31). It would have been obvious to one of ordinary skill in the art

at the time of the invention to modify Sato with the teachings of Matsuda and put a limit on the number of interactions between objects with the motivation to maintain the speed and usability of the virtual world.

In regards to claim 13, Sato and Matsuda teach all the limitations of claim 13. Sato does not teach a server wherein said predetermined interaction limit is specific to at least one of an interaction order and an interaction type, and said interaction stopper is operable to stop interactions within said specificity. Matsuda teaches "In an observation study, for example, a number of clients each want to see and walk about the 3-dimensional virtual space by operating its avatar. For each operation, the amount of system processing increases, causing the amount of communication on a transmission line to rise as well since every avatar shares information with other avatars. For this reason, it is necessary to impose an upper limit on the number of clients allowed to participate in the 3-dimensional virtual space each as a guest who wants to have experience of the 3-dimensional virtual space before becoming a regular client." Column 2, Line 31). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sato with the teachings of Matsuda and put a limit on the number of interactions between objects based on the order with the motivation to maintain the speed and usability of the virtual world.

In regards to claim 14, Sato and Matsuda teach all the limitations of claim 8. Sato further teaches a server as claimed in claim 8 wherein said consequential interaction with said at least second object comprises a change in at least one of location, movement, shape, size, status, internal parameters, color and texture of said

second object (i.e. "With this embodiment, other actors can be used to automatically perform various operations with respect to the thus-configured actors (such as launching an actor into the virtual world or killing it off), so that a virtual world can be constructed on the basis of the laws of cause and effect, making it possible to seem like the real world." Column 7, line 11).

In regards to claim 34, Sato teaches a dedicated control element for controlling the functionality of virtual objects belonging to a set of virtual objects within a virtual reality environment (i.e. "The character actor 28 is responsible for the head of the character 42 on the screen and the character actor 30 is responsible for the head of another character, which is not shown in the figure. A head script used by the character actors 28 and 30 defines actions to be performed by the characters when they bump into a wall or discover an egg, for example. The role of the walk actors 38 and 40 is to define the walking motion (animation) of each character." Column 9, Line 44), said dedicated control element being associated with said virtual reality environment, and comprising: identification functionality for determining whether a first virtual object within said virtual reality environment is a member of said set (i.e. "The character actor 28 is responsible for the head of the character 42 on the screen and the character actor 30 is responsible for the head of another character, which is not shown in the figure. A head script used by the character actors 28 and 30 defines actions to be performed by the characters when they bump into a wall or discover an egg, for example. The role of the walk actors 38 and 40 is to define the walking motion (animation) of each character." Column 9, Line 44), and control functionality for processing events received from said

first virtual object (i.e. "The character actor 28 is responsible for the head of the character 42 on the screen and the character actor 30 is responsible for the head of another character, which is not shown in the figure. A head script used by the character actors 28 and 30 defines actions to be performed by the characters when they bump into a wall or discover an egg, for example. The role of the walk actors 38 and 40 is to define the walking motion (animation) of each character." Column 9, Line 44).

Sato does not teach control functionality being operable to avoid undesirable loops by preventing a consequential interaction between said first one of said virtual objects and a second one of said virtual objects when the number of interacting objects involved in said consequential interaction reaches a predefined maximum, wherein said interacting objects include said second virtual object, and any virtual object intermediating between said first virtual object and second virtual object.

Matsuda teaches control functionality being operable to avoid undesirable loops by preventing a consequential interaction between said first one of said virtual objects and a second one of said virtual objects when the number of interacting objects involved in said consequential interaction reaches a predefined maximum, wherein said interacting objects include said second virtual object, and any virtual object intermediating between said first virtual object and second virtual object "In an observation study, for example, a number of clients each want to see and walk about the 3-dimensional virtual space by operating its avatar. For each operation, the amount of system processing increases, causing the amount of communication on a transmission line to rise as well since every avatar shares information with other

avatars. For this reason, it is necessary to impose an upper limit on the number of clients allowed to participate in the 3-dimensional virtual space each as a guest who wants to have experience of the 3-dimensional virtual space before becoming a regular client." Column 2, Line 31). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sato with the teachings of Matsuda and put a limit on the number of interactions between objects with the motivation to maintain the speed and usability of the virtual world.

Allowable Subject Matter

Claims 1-5, 7, 15-33, 35, and 44-46 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

In regards to independent claims 1, 15, 35, 44, and 45, the prior art found does not teach, splitting an integrally related user-sensible and functional encapsulations of a virtual object at a remote client and server respectively, wherein the server comprises a scene and plurality of virtual objects used in creating that scene; the functional aspect being a behavioral aspect and the user-sensible aspect being either a display aspect or an interaction aspect; in combination with all of the other claim limitations.

Response to Arguments

Applicant's arguments filed 09/18/2007 have been fully considered but they are not persuasive.

In regards to the Applicant's argument that neither Sato nor Matsuda do not teach "avoiding undesirable loops," the Examiner respectfully disagrees. Since the Applicant does not specifically define what constitutes a loop, the Examiner has interpreted it to mean an interaction between objects (flow of information from one object to another). Using this interpretation, Matsuda clearly teaches that interactions between objects are limited because there is a limit to the number of total participants in the system. Hence, Matsuda avoids undesirable loops, by limiting the number of interactions. The loops may be undesirable because if you have too many interactions between objects, the server becomes very slow transferring and compiling all the data which can create lag in the system.

As a side note, the Examiner is unclear to why parts of the argument have been stricken out (i.e. page 13 and 14), but the Examiner will assume that this was just an error and the Applicant's intent was not to have those stricken out. Further clarification is requested.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris Pesin whose telephone number is (571) 272-4070. The examiner can normally be reached on Monday-Friday except every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2174

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. P./

/David A Wiley/
Supervisory Patent Examiner, Art Unit 2174